

NON-PLASMA REACTION APPARATUS AND METHOD

Abstract of the Disclosure

An apparatus and method for forming a self-limiting etchable layer on a workpiece. The apparatus comprises: a chamber adapted for holding a workpiece; a distribution plate within the chamber, wherein the distribution plate includes channels for introducing a first fluid (e.g., ammonia) and a second fluid (e.g., hydrogen fluoride) into the apparatus, such that the first and second fluids may be directed into the apparatus at the angles $\hat{1}_1$ and $\hat{1}_2$ with respect to an exposed surface of the distribution plate, wherein the channels for each type of fluid may be arranged respectively in alternating rings; and wherein each angle $\hat{1}_1$ and $\hat{1}_2$ are at least 45 degrees and less than 90 degrees, offset by $\hat{1}_2 \pm 2$ and $\hat{1}_2^2$ and $\hat{1}_1 \pm 1$ and $\hat{1}_1^2$ by analogy. The method for forming the etchable layer on the workpiece comprises introducing a first fluid and a second fluid into the chamber through the channels.

Figures